

instrument of the Bushmen and two papers on Kabyle pottery. Indian ethnography is represented by one paper and Malay ethnography by three; other papers deal with the Nicobars, Sarawak, Tasmania, Tonga and New Zealand. The range is wide alike in geography and matter, so that practically all departments of anthropology are represented, and the twenty plates are of exceptional interest and excellence.

ANTHROPOLOGY is to be congratulated in having found so able and enthusiastic a student as the Rev. J. Roscoe, of Uganda, whose paper on the manners and customs of the Baganda is of extreme interest. Amongst other important novelties, it contains an account of a typical form of totemism which was previously unrecorded among the Baganda, and even the magical aspect appears to be present. Very suggestive are the customs relating to twins and the sympathy between human beings and plantains. The people appear to have but recently emerged from matriarchy into patriarchy.

ANOTHER important paper in the same *Journal* of the Anthropological Institute is that on some animistic beliefs among the Yaos of British Central Africa, by the Rev. A. Hetherwick. The Yao present us with three stages of animistic belief, (1) the *lisoka* or human shade, the agent in dreams, delirium, &c.; (2) this *lisoka* regarded as *mulungu* and an object of worship, the controller of the affairs of this life; and (3) *mulungu* as expressing the great spirit agency, the creator of the world and of all life. Between these three conceptions of the spirit nature no definite line can be drawn.

In the concluding portion of his article on "Regeneration in Plants" in the *Biologisches Centralblatt*, Prof. Goebel has an instructive chapter on the disposition of adventitious developments which follow upon injury or wounding. That it may be referred to a polarity depending upon internal, not external, factors follows from Vochtinger's researches. Tracing the argument back further—e.g., what does polarity mean?—Beijerinck's hypothesis of an upward current shoot forming and a downward current root forming is accepted in part, and experiments which can be explained upon this hypothesis are mentioned. Sometimes, however, this is not satisfactory, and Prof. Goebel finds that a more general and correct explanation of certain anomalous cases is obtained by a consideration of the direction of flow of the food current. Finally, Prof. Goebel regards with favour the idea of a controlling enzyme as postulated by Beijerinck.

The Geological Survey of Western Australia, in *Bulletin* No. 6 (1902), gives the results of the chemical and mineralogical research work carried out by Mr. E. S. Simpson since the laboratory was established in 1897. There are notes on native gold and its compounds with tellurium and other elements, as well as notes on various ores, on coal, peat, clays, water, and on sundry intrusive rocks.

We have received three important papers devoted to embryology and development. Two of these, dealing respectively with amphibians and the brachiopod *Lingula*, appear in a recent issue of the *Journal* of the Tokio College of Science. The third, by Dr. J. A. Masterman, which is published in the *Transactions* of the Royal Society of Edinburgh, treats of echinoderm development.

THE August issue of the *Journal* of the Department of Agriculture of Victoria is composed of the annual reports of the officers in charge of the various branches of the Department, prefaced by a brief summary of the whole by Mr. S. Williamson Wallace, the Director of Agriculture for the colony. The reports are interesting reading, and tell of much good work done on scientific lines at a comparatively small cost.

NO. 1716, VOL. 66]

THE *Scientific American*, New York, for August 30, contains an illustrated article, by Mr. F. Moore, upon the United States Naval Observatory.

PART 4 of the new and cheaper edition of Kerner and Oliver's "The Natural History of Plants" has reached us from Messrs. Blackie and Son, Ltd.

MR. BERNARD QUARITCH has just issued a new part, devoted to India and the Far East, of his "Catalogue of Works on Oriental History, Languages and Literature," containing particulars of many rare and valuable books.

THE additions to the Zoological Society's Gardens during the past week include two Bonnet Monkeys (*Macacus sinicus*) from India, presented by Mr. J. H. Osborne; two Diana Monkeys (*Cercopithecus diana*) from West Africa, presented by Mr. E. Skinner; a Levaillant's Cynictis (*Cynictis penicillata*) from South Africa, presented by Mr. E. C. S. Jervis; two Cape Eared Owls (*Asio capensis*) from Africa, presented by Captain Fraser; a Diana Monkey (*Cercopithecus diana*), a White-thighed Colobus (*Colobus vellerosus*), two Grey-headed Sparrows (*Passer simplex*) from West Africa, a Simpae Monkey (*Semnopithecus melalophus*) from Sumatra, a Salle's Amazon (*Chrysotis ventralis*) from St. Domingo, two Striated Tanagers (*Tanagra striata*) from Buenos Ayres, a Blue Sugar-bird (*Dacnis cayana*), an All-green Tanager (*Chlorophonia viridis*) from Brazil, deposited; two Swinhoe's Pheasants (*Euplocamus swinhoii*), an Argus Pheasant (*Argus giganteus*) bred in the Gardens.

#### OUR ASTRONOMICAL COLUMN.

ANOTHER NEW COMET.—From information received, through Mr. E. W. Maunder, from Mr. John Grigg (a member of the Cometary Section of the British Astronomical Association), of Thames, New Zealand, it appears that the comet discovered by Perrine, which, if this news is confirmed, has been erroneously named 1902 b, is not the second, but the third comet discovered this year.

Mr. Grigg says that whilst using his 3½-inch Wray equatorial, with a power of 25 on July 22d. 18h. 30m. G.M.T., he saw a nebulous object which was roughly noted as R.A.=11h. 35m., Dec.=+7° 0', and reference to various charts and tables elicited the fact that this was not a previously recorded nebula or comet. On the following evening, the same object was doubtfully recorded as 24' further south and 7' eastward of its previous position. Feeling satisfied that this was really a new comet, Mr. Grigg acquainted Mr. Baracchi (Melbourne Observatory) and the Press Association of his supposed discovery.

Three days later, and also on August 1 and 2, the same observer again saw the suspected comet and recorded the following positions:—

| d.        | h.     | m.         | Dec.       |
|-----------|--------|------------|------------|
| July 23·8 | G.M.T. | R.A.=11 40 | Dec.=+6 35 |
| 26·8      | "      | "=12 0     | "=+5 30    |
| 29·8      | "      | "=12 20    | "=+4 20    |

and from these he calculated the following elements:—

$$T = \text{June } 20, 1902.$$

$$\begin{aligned}\omega &= 292^{\circ} 43' \\ \Omega &= 217^{\circ} 48' \\ i &= 18^{\circ} 24' \\ \log q &= 9^{\circ} 7241.\end{aligned}$$

The observations are all of them a little doubtful owing to persistent haze and moonlight, but Mr. Grigg gives the particulars for "what they are worth," and has sent them in this uncertain state in order to catch the outgoing mail.

The position of his observatory is:

|           |     |     |                     |
|-----------|-----|-----|---------------------|
| Longitude | ... | ... | 175° 32' 38" 54" E. |
| Latitude  | ... | ... | 37° 8' 23" 21" S.   |

COMET 1902 *b*.—Circular No. 51 from Kiel gives the subjoined elements and ephemeris, as calculated by Herr Elis Strömgen from the observations made at Lick on September 1, at Urania on September 2, and at Copenhagen on September 4, for the comet discovered by Perrine at Lick on September 1.

#### Elements.

T = 1902 Nov. 23<sup>h</sup> 31<sup>m</sup> 5 Berlin.

$$\begin{aligned} \omega &= 153^\circ 53' 2'' \\ \Omega &= 50^\circ 10' 6'' \\ i &= 157^\circ 8' 2'' \end{aligned} \left. \vphantom{\begin{aligned} \omega \\ \Omega \\ i \end{aligned}} \right\} 1902.0$$

$$\log q = 9.60094.$$

#### Ephemeris.

| 1902.       | a app. |           | δ app. |       |
|-------------|--------|-----------|--------|-------|
|             | h.     | m. s.     | °      | '     |
| Sept. 6 ... | 3      | 11 48 ... | +37    | 0' 3  |
| 10 ...      | 3      | 4 26 ...  | +39    | 10' 4 |
| 14 ...      | 2      | 52 59 ... | +41    | 51' 4 |
| 18 ...      | 2      | 34 47 ... | +45    | 13' 2 |
| 22 ...      | 2      | 4 19 ...  | +49    | 23' 3 |
| 26 ...      | 1      | 10 1 ...  | +54    | 3' 8  |

Perrine describes the comet as "slightly elongated, mean diameter 4', magnitude = 9, tolerably well-defined nucleus, possesses a tail." Struve, observing at Königsberg on September 2, 10h. 41m. 2 (Königsberg), saw a sharply defined nucleus of the 11th magnitude.

NEW ALGOL VARIABLE.—Mr. A. Stanley Williams announces in the *Astronomische Nachrichten*, No. 3811, the discovery of a new Algol variable (13, 1902 Lyrae), the position of which he gives as

$$\alpha = 19^{\text{h}}. 10^{\text{m}}. 48^{\text{s}}. 7. \quad \delta = +32^\circ 10' 1'' (1855).$$

This object is the most following, and normally the brightest, of the three stars forming a small triangle south of the 9<sup>h</sup> 1 mag. star B.D. + 32° 33' 7". On the scale used, its normal magnitude is 10.98, whilst at minimum it is only just visible with the 6.5-inch reflector, i.e. its magnitude is about 12.8.

The star remains at its normal brightness for about 3d. 6h. 22m., and the increase and decrease each occupy about 4 hours; there is no apparent interval at minimum, and the observations, so far, have not indicated the presence of any secondary minimum.

Subjoined is an extract from an ephemeris, calculated for every fifth minimum by Mr. Williams.

| 1902.        | G.M.T. |       |
|--------------|--------|-------|
|              | h.     | m.    |
| Sept. 21 ... | ...    | 11 28 |
| Oct. 9 ...   | ...    | 11 20 |
| Oct. 27 ...  | ...    | 11 12 |
| Nov. 14 ...  | ...    | 11 4  |
| Dec. 2 ...   | ...    | 10 56 |
| Dec. 20 ...  | ...    | 10 48 |

Prof. E. Hartwig observed this variable from 9h. 22m. to 11h. 19m. (Bamberg M.T.) on August 16, and found that, during that period, its light decreased by 1.3 magnitudes; cloud and strong moonshine prevented the observations from being carried on throughout the minimum.

SIR DAVID GILL'S NEW THEORY OF STELLAR MOVEMENT.—Mr. Carpenter has recently been examining the measures of the stellar photographs obtained at Oxford during the last seven or eight years, in order to see if they indicate any such movement of the brighter stars as a whole, with respect to the fainter stars as a whole, as was recently suggested by Sir David Gill. Although this was too great a task for Mr. Carpenter to finish during his holiday, he got far enough to find indications which supported Gill's hypothesis.

This result was considered so important that the whole of the Oxford staff was deputed to examine the photographic measures for a belt of stars about Dec. + 26°, and the result indicates that there is an apparent movement as suggested amounting to about 0s. 002 per magnitude per year. This corresponds in magnitude to the quantity found by Gill, "but its sign is opposite to that found by him." If this sign is found on further revision to be correct, then it is difficult to imagine that the movement is simply one of rotation, and further investigation must be made before any definite theory may be accepted (*The Observatory*, September, 1902).

NO. 1716, VOL. 66]

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

DR. W. H. MILLS, Fellow of Jesus College, Cambridge, has been appointed head of the chemical department of the Northern Polytechnic Institute in succession to Mr. H. C. L. Bloxam.

MR. H. W. MALCOLM, B.Sc., has been appointed lecturer and demonstrator in physics at University College, Bristol, in the place of Mr. L. N. Tyack.

MR. W. R. KELSEY, late of the Bradford Technical College and of the South-West London Polytechnic, has been appointed principal of the Taunton Municipal Technical Institute.

THE University of Nebraska has this year added a course of study in forestry to its curriculum. The course will extend over a period of four years.

THE sum of 1000*l.* has been placed by Sir Conan Doyle at the disposal of the senatus of Edinburgh University for the purpose of instituting a bursary in the faculty of medicine, available only for students from South Africa. The bursary is to be administered in detail as the University may direct.

Science for September 5 publishes for the fifth year in succession statistics of the conferment of the degree of Doctor of Philosophy by American universities. In the present year, some 214 doctorates have been conferred by twenty-seven institutions, as against 253 in 1901, 233 in 1900, 224 in 1899 and 234 in 1898. The largest numbers of degrees conferred were in the subjects of chemistry, zoology, physics and botany, the numbers being respectively 24, 16, 12 and 11.

SIR HENRY CRAIK's report for the year 1902 on secondary education in Scotland shows that there has been a large increase in the number of schools presenting candidates in science subjects at the leaving certificate examination, and also in the total number of candidates presented. In many cases there has been a distinct advance in the quality of the work done as compared with former years. It is satisfactory to know that in the examinations of Scottish secondary schools great prominence is given to oral and practical methods of testing the work, and the examinations in the case of each school are shaped by the curriculum of that school.

THE educational announcements for the session 1902-3 of the Northampton Institute, Clerkenwell, make an imposing volume of some 200 pages. Classes will be provided in a large number of technological and trade subjects, but students who require instruction in literary or commercial subjects must go to one of the other City polytechnics, for the Northampton Institute is primarily intended to teach technology. Very properly, great attention is given to subjects which directly assist the industries of the immediate neighbourhood. The courses of instruction fall into two distinct sections, the engineering day classes for students willing to give the whole of their time for one or more years to a systematic training in some branch of engineering, and the evening classes in a variety of subjects for working men engaged during the day.

THE new regulations of the University of Oxford School of Geography show that admission is not confined to members of the University, but all applicants must give satisfactory evidence of sufficient general education to profit by the teaching. A course of instruction in the subjects required for the University diploma in geography begins in October and extends over one academic year. Weekly lectures are delivered by all the members of the staff, six in number, and practical instruction is given on at least four days in each week, and includes position-finding, topographical surveying and map-projection. A scholarship of the value of 60*l.* is offered annually for competition among members of the University who have taken honours in one of the final schools of the University. During 1901-2 the lectures were attended by 208 students, of whom 163 were men from twenty-one colleges, and forty-five women from five colleges or halls.

IN urging the necessity for a more extensive and highly developed system of technical education in this country, English men of science often refer to the provisions made in the United States of America to equip American workers with a practical education of a technical kind so as to fit them to take a useful place in the industries of their country. A recent address, by Prof. V. C. Alderson, Dean of the Armour Institute of Technology at Chicago, on "Technical Education an Economic Necessity," shows some imperfections in the American system. Prof. Alderson is of opinion that up to the present the existing admirable technical institutions in the United States have concerned